

Teachers as metacognitive role models

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Abstract

This paper draws on data collected during a longitudinal collaborative project with teachers in England from schools and further education colleges. The project investigated 'Learning to Learn' (L2L) in partnership with teacher-researchers with a focus on how metacognitive awareness can be improved by enquiring into creative combinations of pedagogy, environment and learners' dispositions. The paper is an attempt to make clear the theoretical underpinnings of our belief that the project teachers were enacting something different, something metacognitive. We present a pragmatic model of metacognition development based on ideas collaboratively produced across the project. The 5 cycles of development are exemplified from the pedagogic and the professional learning perspective with quotes, vignettes and case study excerpts. We show a catalytic relationship between the pedagogies used by the teachers to develop their students' metacognition and the teachers' own learning and metacognitive knowledge and skilfulness.

Key words: metacognition, teacher learning, learning to learn, practitioner enquiry,

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1. Introduction

This paper draws on data collected during a longitudinal collaborative project with teachers in England from all stages of education, from nursery schools (learners aged 3-5) to further education (learners aged over 16), encompassing mainstream schools, schools for learners with Special Educational Needs (SEN) and Further Education

Colleges. These teachers came together to investigate 'Learning to Learn' (L2L), with a focus on how learning could be improved by innovating with creative combinations of pedagogy, environment and learners' dispositions. The diversity of their contexts was made a virtue by using a practitioner enquiry through action research methodology which allowed us all to come together to focus on the promotion of effective learning whilst putting the contextual detail to the side.

The focus on learning was central to all participants' motivation, leading to engagement with questions such as: what are the characteristics of a good learner, which pedagogies are effective and how we can make the process of learning explicit. When the project first started we (funders, researchers and teachers alike) were all convinced that the project was about students' learning and outcomes; yet as the project progressed it became apparent that we had to be more inclusive in our view. Equally important, if not more so, in setting the tone for the classroom learning was the teachers' own learning through the enquiry process, through the discussions they had with their students and through their own personal engagement with metacognition. This paper therefore focuses on the metacognitive role of the teachers and the extent to which the teachers were able to act as metacognitive role models for their students.

2. The project

Learning to Learn in Schools and Further Education (Higgins *et al.* 2007; Wall *et al.* 2010) was a research project funded through and coordinated by the UK charity, the Campaign for Learning (CfL, <http://www.campaign-for-learning.org.uk>) and facilitated by a team originating from the Research Centre for Learning and Teaching

at Newcastle University. The project (we report here on Phases 3 and 4. Phases 1 and 2 reported in Rodd, 2001; 2003) ran from 2003 until 2011 and involved over 150 teachers from more than 60 primary, secondary and special schools in Cheshire, Cornwall, Enfield and Northumberland, and two further education colleges, Northumberland and Lewisham, with around 15 teachers participating in each. The LEAs and the two Further Education Colleges, were chosen as representing a wide range of socio-economic contexts (Higgins *et al.* 2007; Wall *et al.* 2010), and, in part, a consequence of this was that the project network had a wide geographical spread. A representation of the project and its cycles of enquiry can be seen in figure 1.

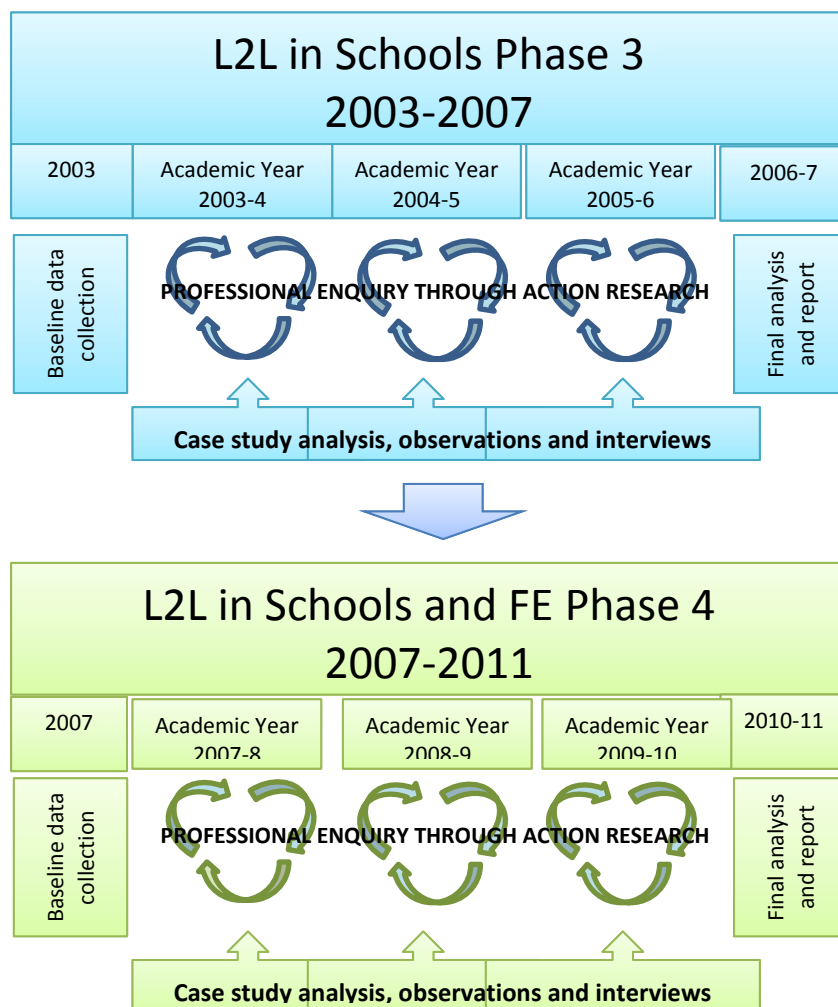


Figure 1: Project overview of Learning to Learn Phases 3-4

In addition to the geographical and contextual diversity apparent in the project, there was also variation in the research focus as put in place by each participant. They implemented interventions under the umbrella term of *Learning to Learn* (L2L), introduced to the teachers as a set of dispositions that could be developed through pedagogies that privileged Thinking Skills, self-awareness and regulation, collaborative learning in a community. The collaborative, working definition of L2L at the end of Phase 4 was:

Learning to Learn is an approach that focuses on what happens when we learn and how we can learn more effectively. Being involved in L2L means being part of a community of enquiry that aims for a better understanding of the learning process. An L2L approach provides all learners with opportunities and tools for reflective and strategic thinking that generate talk and collaboration. This helps individuals develop skills and dispositions for successful lifelong learning that can build their motivation and enable them to take effective action to fulfil their learning goals. (Wall, et al, 2010, p5)

The project teachers were invited to explore the different approaches they understood as being encapsulated by the *Learning to Learn* heading within their school or classroom, often incorporating innovative teaching approaches or technologies that had been recommended through other training or responding to changes in curriculum or policy. Cross sectional and longitudinal analysis of the case studies shows, amongst other patterns, the impact of training delivered in Cheshire on learning styles, work done in Enfield on peer feedback and the impact of the national push on ICT use in primary classrooms.

The project had to be authentically interesting, useful and timely to each teacher and the locus of control for the focus of enquiry throughout the project remained with the teachers rather than the researchers (Higgins *et al.*, 2007). This was paramount in achieving the project aims (Hall, 2009) of engaging and retaining groups of

teachers on cycles of enquiry. It also linked to a model in which teachers adopt cultural tools (Boreham and Morgan 2004) from research practice and embed them within their practice of learning and teaching. Thus the developmental process of practitioner enquiry through action research using an approach based on Stenhouse's (1981) model of '*systematic enquiry made public*' (Baumfield et al. 2012) was much more than the acquisition of a research 'skill set', although competence and confidence did grow through extended participation, but rather encompassed personal perspective transformation, cultural change within schools and the broadening of external networks of collaboration, communication and critical challenge.

The data set that arose from the project was large and complex. Its core was over 150 case studies written by the teachers themselves reporting their enquiries as they saw them. The case studies were all attributed to the teacher and their school, it was considered as unrepresentative of authentic partnership for them to be anonymized (this commitment to teacher voice is continued in this paper). The research team additionally undertook a variety of cross project data collection, including interpretivist analysis of the case studies themselves as well as analysis of key research tools used across the teachers' enquiries. The team also completed more traditional survey based engagement with the perspectives of students, teachers and leaders of the participant institutions and analysis of the school level data around attainment and attitude. Finally, the project team, who were engaged in their own enquiries within the project frame, engaged in observation and field notes of the practice of implementing learning to learn as well as the engagement with metacognition, the role of practitioner enquiry and the way in which the community

worked together, evolved and came to collaborative understandings of learning to learn in theory and practice. All project findings were validated with the practitioners through reflexive feedback loops as an ethical part of participatory research. In this paper we draw from all of these sources and use excerpts from the data to exemplify the points made.

Over the eight years of the project we synthesised not only the case studies produced by the teachers but also data directly collected from learners in the form of posters, cartoons and mediated interviews, interviews with teachers and senior managers and questionnaire attitude data collected from staff and from students as well as publically available attainment data collected nationally. From this we have identified a significant number of areas where there was positive impact on learners (see table 1 below).

| Language | Skills | Knowledge | Understanding | Dispositions | Other |
|--|--|---------------------------|---|------------------------|-------------------------------|
| Articulation | Use of a range of learning skills e.g. mind mapping, mnemonics | Attainment (tests) | Self-assessment | Mastery orientation | Enjoyment Self-esteem |
| Classroom discourse | | Achievement (performance) | Evidence of transfer | 'Habits of mind' | Satisfaction |
| Meta-language or 'language for learning' | | Metacognitive knowledge | Metacognitive Skilfulness, strategic and purposeful use of skills and knowledge | Retention / Attendance | Self-concept Self-efficacy |

Table 1: Evidence for impact on learners, (from Wall et al 2010, p 14)

That Learning to Learn had so many positive outcomes was in many ways unsurprising given the supportive network and the enthusiasm of the teachers involved. However, we were convinced that there was something more than a 'happy Hawthorne' effect at work and on closer analysis of the data, we began to see patterns emerge of teachers modelling particular attitudes and behaviour.

The paper is an attempt to make clear the theoretical underpinnings of our belief that the project teachers were enacting something, modelling something catalytic (Baumfield et al. 2009). Our previous project analyses had identified what we referred to as productive ecologies for the virtuous cycles of learning, talk and confidence and in this paper we make the case for a theoretical and empirical synthesis. We attempt to unmap *“into abstraction such a territory”* (McCaig, 1959) by exploring the conceptual model of developing metacognition, through enquiry and community, drawing from the patterns emerging from the data and exploring how this slippery concept has been used by learners. Rich case examples and ‘talk data’ from the project are then offered to *“re-map [these concepts] out of abstraction into closely observed detail and careful reflection”* (Skoblow, 2003, p326), in two ways:

- the pedagogies that support productive talk about learning; and
- the ways in which teachers consciously role-model the metacognitive processes.

3 Metacognition: project definitions and practice

Metacognition, knowledge about cognition (Flavell, 1977; 1979; 2000) or ‘thinking about thinking’ as it is more popularly known (Livingston, 2003) is an important central concept in Learning to Learn, though it is “fuzzy” (Scott and Levy, 2013). There is considerable academic debate about the nature of metacognition (Williamson, 2005; Efklides, 2008) and what it looks like in practice (Dignath et al., 2008), the evolution of metacognitive awareness and skills (Bartsch et al., 2003; Kuhn, 1999) and the extent to which this internalised process can be recognised and empirically captured (Gascoine et al., in press). Given that there is more and more

convincing evidence about the extent to which learners' metacognitive awareness has positive impact on attainment, with effect sizes ranging between 0.5 and 0.8 (for example, Higgins et al. 2013; Hattie 2008), we consider that there is a clear warrant to explore this difficult concept in classrooms. This paper acknowledges this work and seeks to contribute 'sightings in the field' of metacognitive practice from a pedagogic perspective.

We will briefly locate the shared understanding of the term held within the project and the developmental and relational model we have drawn from our observations in classrooms, teacher and learner interviews and our analysis of case studies. The enquiry process and the dialogue produced revealed that understandings of 'learning', 'learning to learn' and 'metacognition' were constantly developing, being challenged and being revisited by all the learners: university researchers, teachers and students. We referred to this as 'making the process of learning explicit' (Wall, et al, 2010). So within the research project there was space for the fuzziness of metacognition, for example we did not use the term in our definition of Learning to Learn (see above) in part because teachers themselves did not have a strong sense of what metacognition meant to them. Instead, we came to use the term 'strategic and reflective thinking' from Moseley et al.'s (2005) review of learning theory and the Framework they provide as a synthesis of the ideas presented (figure 2). This term had congruent links to the language that the teachers were used to using, such as reflective practitioners/ reflective learners and therefore linked to their professional dispositional understanding as well as their aspirations for the learners in their class.

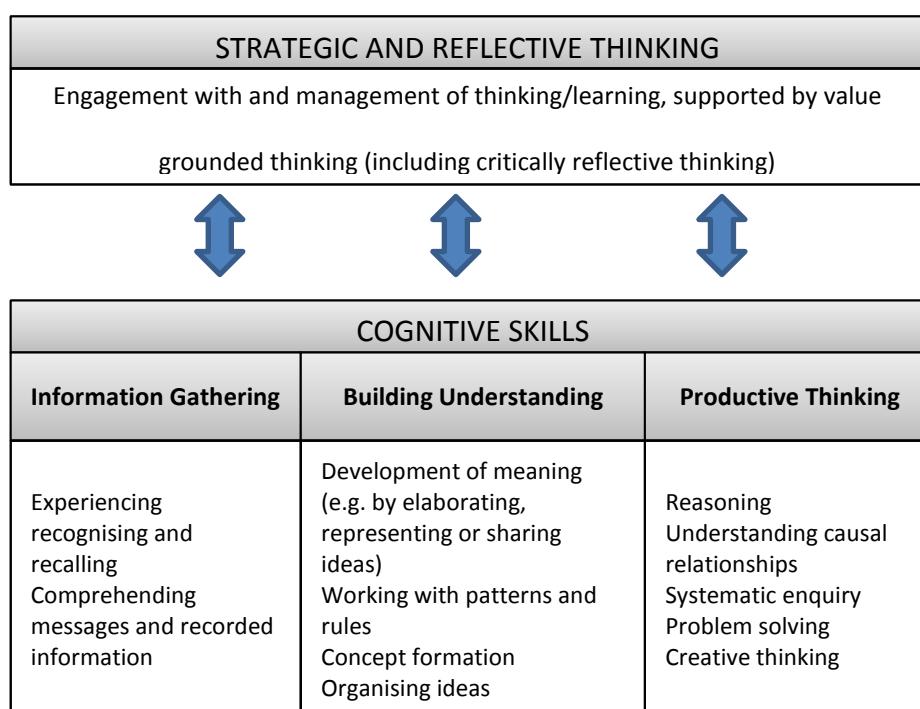


Figure 2: An integrated model for understanding thinking and learning (Moseley et al, 2005, p378)

Ultimately we believe that a focus on metacognition involves a change in emphasis so that the process of learning is equally important to the outcomes; it is not just whether you got from A to B, but also how you get there. A classroom that emphasises metacognition, therefore, allows time to focus on the learning process, the sharing of thinking about thinking, and creates spaces in which the learners can act on their reflections (time for reflective and strategic thinking). In other words, the learners are encouraged to engage in how they have learned, what were the successes and failures of that learning and then contemplate how to move forwards and make that learning better. Importantly they are given the space to take risks and try out their hypotheses about what would have made the learning better. This way of learning is more likely with certain types of activity. Tasks tend to be loosely bound and allow for concept generation with an inherent amount of challenge that

facilitates the learners in operating out of their zone of proximal development (Vygotsky 1978). This focus on learning, rather than 'work' and tasks to be completed may not sound a massive change; few teachers could disagree with the idea that they are fundamentally involved in the business of learning but it can represent a significant cultural shift, and in educational systems where all the pressure is on achieving grades (in increasingly public and accountability-based management systems), as in England, then it can be challenging.

4 Metacognition: modelling the process from the project data

The data from the project has provided the fine grained detail of practice that enabled us to develop a pragmatic model of metacognitive engagement. It has allowed us to suggest a progression from recognising and embedding metacognitive knowledge, through periods of uncertainty and reflection towards a version of metacognitive skilfulness that has meaning to the individual learner, to their learning community and to other communities. This model demonstrates a catalytic relationship between the pedagogies used by the teachers to develop their students' metacognition and the teachers' own learning and metacognitive knowledge and skilfulness. Each stage of the process model of metacognition in the classroom will be illustrated with examples from pedagogy contextualised by examples of the teachers' metacognitive understanding and intent. We will argue that as the model progresses, the two elements become more closely entwined with tighter feedback loops between them: feedback from the pedagogies catalysing greater awareness in

the teachers and teachers' increased awareness catalysing curriculum and pedagogic design that privileges opportunities for metacognition.

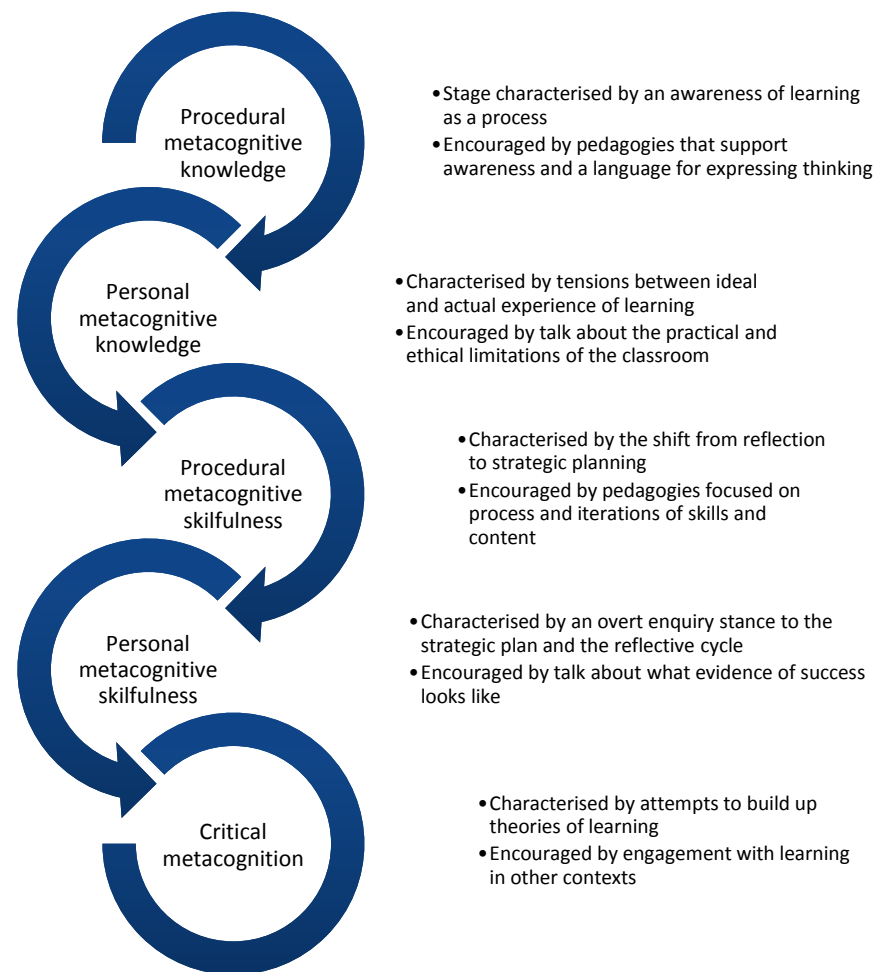


Figure 3: stages of metacognitive engagement from the project

4.1 Cycle 1: procedural metacognitive knowledge

Our model posits an initial procedural cycle, where teachers' conceptual awareness of metacognition has led to the implementation of group pedagogies that facilitate learners' awareness and develop the language tools to discuss metacognition. These pedagogies, often located around the project's dispositions framework, had the qualities of timely and congruent reflection; dialogic talk in which diverse experience was respected alongside the sharing of successful strategies; opportunities to

capture experience so that it can be revisited and explicit links to resilience and self-regulation within the learning community.

Developing a common language for learning in the project was critical since during the talk in classrooms 'thinking about thinking' was revealed to be a personal and complex entity: initially difficult to pin down and thus empowering in the sense that it was difficult to criticize or dismiss another's perceptions of how they learned something. Through pedagogies like Philosophy for Children, we and the project teachers modelled being comfortable with plurality and uncertainty. It is through creating such an environment in which individuals can tolerate uncertainty and be empathetic, that the development of language and the beginnings of questioning and hypothesizing about learning experiences occurred. The students, and the teachers, were able to engage with each other in authentic enquiry about learning where no-one really had all the answers, everyone was still learning and the very process of this talk enabled a metacognitive engagement (Efklides 2006). From these discussions developed 'local versions': articulations of strategic and reflective thinking that had grown organically in classrooms.

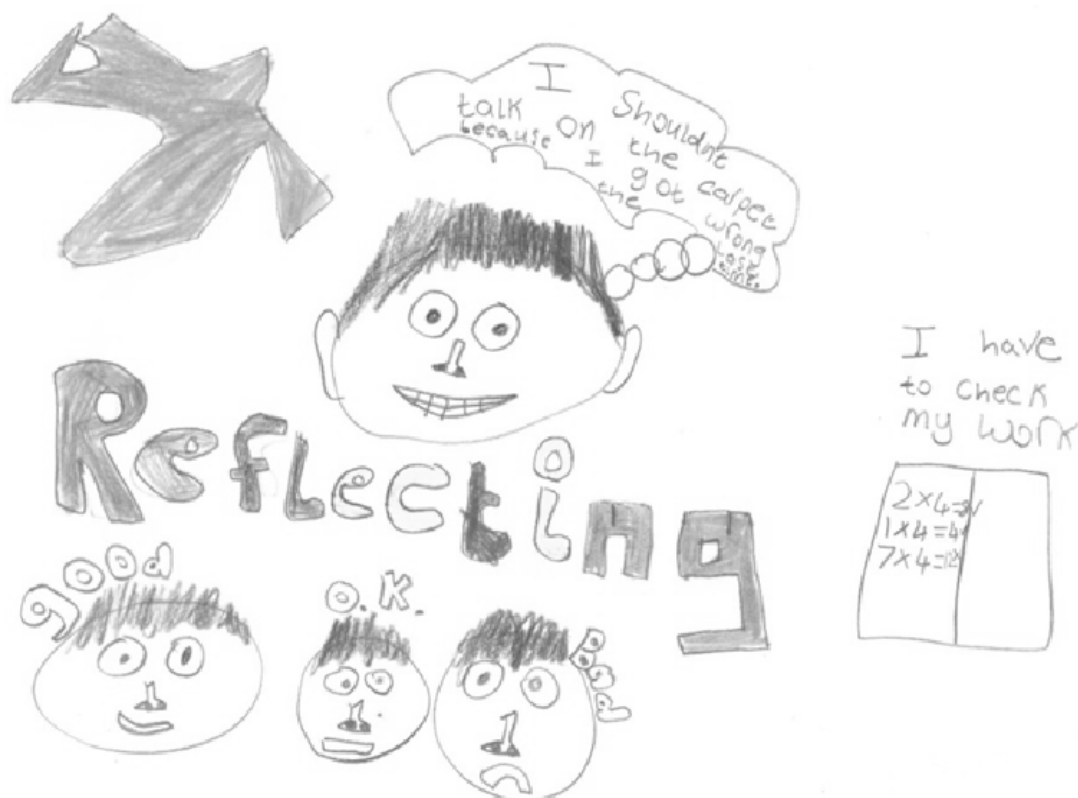


Figure 4: A pupil from Amble First School explains cognitive and relational aspects of reflection

Here the teachers were modelling the importance of ‘how’ alongside ‘what’ in learning, the benefits of cyclical reflection and the permission to reach goals by a number of effective routes. Clearly, in order to facilitate this, the teacher had to engage with their own perspective on this but equally, they did not have to be at the end of that reflective and integrative process.

“I am trying to get my brain straight. For me L2L is an understanding that we each and all have the potential to become better and better learners.

Regardless of who we are, where we are, how old we are, what we want to learn – whatever it is.” (Dot Charlton, First School Headteacher, senior leader interview data)

“I am interested in making the learning process more explicit to students, so they know not only what we do, but why we are doing it. Having that dialogue

with them about why we are doing and the why we are doing it and so they are aware of why it is important.” (Gill Maitland, Secondary School Assistant Headteacher, senior leader interview data)

4.2 Cycle 2: Personal metacognitive knowledge

After the establishment of this metacognitive knowledge, came a personal cycle in which teachers and learners began to identify individualised areas of difficulty and inconsistency and to explore these through their own enquiries – self-talk, dyadic and small group discussions– that allowed individuals to integrate strategies and to conceptualise their problem-solving. We include two vignettes (summarised from the case studies) that show this enquiry standpoint and the strategies implemented to support its development and process:

At High Street Primary School the teachers used ‘thoughts and feelings books’ to allow the Year 1 students (5 and 6 years old) to reflect on their own learning each week. This allowed the students to see that they might learn differently in different subjects and at different times in the week, but that also there were sometimes common skills that could be transferred. In addition in circle time [*plenary session*] they used these reflections as part of a class discussion to show that individuals might learn the same thing differently to the child sat next to them, they might have success (or failure) in different ways and that the class needed to be supportive of all these experiences and the learning that results.

At Cloughwood Special School for teenagers with challenging behaviour there was a need to encourage independent learners and facilitate a move away from teacher support to peer- and self-help. The teachers implemented a ‘5 before

Me' mnemonic that gave five strategies the student should try when they were stuck on a task before going to the teacher (Me) for help. This gave the students an easy tool to support their own strategic thinking and led to conversations with a group that had experienced numerous challenges in their learning trajectories about what might be supportive of effective learning.

During this phase there was often a degree of conflict between what the individual learner had identified as most helpful for their learning and what was possible within that particular environment, this could be exploited by the teacher to make the links between self-regulation and resilience within the learning community explicit. In these classrooms the learners came to see learning as hard work and complex, but also to see the benefits of this complexity (Wall 2012; Wall et al. 2016), to see associations across many different facets of life and to consider their role as individuals and as members of a community.

The 'honorable state' (a term used in mathematics education by Mason et al. 2010 to describe the 'state of not knowing') was extended in Lanner Primary School across the curriculum as a fundamental facet of good learning. The children were encouraged to see learning as a product of being challenged beyond what they already knew and therefore getting stuck: this was the honorable state. By making being stuck a positive position, the teachers were facilitating children's dispositions and attitudes to future learning.

For the teacher as model, there was opportunity at this point to openly reflect on how her teaching style privileges certain kinds of learning and to show herself to the learners operating at the edges of her comfort zone. This can be a significant

challenge since she will inevitably have to share instances of failure but as modelling, it was accessible and empowering for students.

Alison Whelan at Tytherington High School explored learning logs and in the end presented her case study at the conference where she introduced herself to a packed hall as a 'successful failure'. By the end of the school year, after she had tried numerous different formats for the learning logs and received feedback from the students about what had worked (or not), she was able to conclude that learning logs had limited use in the secondary school (for numerous reasons) but that she and the students were all much better at reflecting on their learning because of the conversations they had throughout the process.

4.3 Cycle 3: Procedural metacognitive skilfulness

In L2L the individual perspectives from these enquiries were next shared with the group as a second procedural cycle, but this time associated with a move to skilfulness: a strategic expansion from the past 'how did I?' to the future 'how could I?'. The data traces a movement from metacognitive talk with students which focuses on self-awareness and is operationalised *through* learner voice (Robinson and Taylor, 2009) to metacognitive talk that is part of the productive dialogue embedded in learning activities in the classroom. At this stage, the skills of planning and reflection were supported by pedagogies that made explicit the links between learning experiences, in micro-interactions such as signposting opportunities for learners to use mind-mapping across different curriculum areas or in a more systemic approach, such as collaborative projects and student-led planning.

For two years we have worked hard as a school team to put into place a skills based curriculum which would reinvigorate children's learning. We have recognised as a staff that we need to give pupils much more meaningful, joined up thinking opportunities to learn at school and have put the skills based curriculum in place, building on the school vision of "A Rising Tide Lifts All Ships". The children now expect and enjoy new challenges and most have lost their self-consciousness. Those who still struggle are more willing to have a go albeit in a more restrained way. Working in small groups was key but the main difference for me was allowing the children to take control over what they were doing during significant portions of the day. (Kathy Rowe, Marlborough Primary School, case study excerpt)

The teachers' practitioner enquiries throughout Learning to Learn focused on aspects of cognition which became the focus of reflection and as they reflected, the learners (teachers and students included) headed into the metacognitive realm. Exploring the impact of their L2L practice, the majority of the teachers' projects included data resulting from talking to the students through formal and informal conversational methods. This produced feedback both on the interventions deployed but also on the experiences the students had of their teacher as a researcher. These conversations seemed to encourage teachers to go beyond an evaluative data collection function and to have honest, open dialogues about their enquiry and the research cycles in which they were involved. This honesty included admitting to the students that they did not know all the answers and that they were learning (with successes and failures) alongside the students:

At Fleecefield Primary School learning logs had been implemented to support Year 6 (10-11 year old) students' reflection. However due to successes and failures of this process the teacher learned a lot more about her own view of learning and was made to think about the learning characteristics she should and should not be encouraging in the classroom. She was honest with her class about her own enquiry into metacognition and as a result the process led to many conversations with the class about what good reflection looked like and how this should be facilitated in a useful way. The teacher had to consider the impact of undermining her expert role when sharing with her students that she had not really understood what she was asking them to do

As metacognitive role models we saw, in this cycle, the teachers take significant risks, although most saw it as the next sensible step in their L2L journey, and open up the dialogue about teaching and learning to include their own processes, the successes and failures, as it impacted on the students' learning.

4.4 Cycle 4: Personal metacognitive skilfulness

As these practices become embedded, a fourth cycle was characterised by opportunities for all the participants to evaluate the various strategies they used and to revisit the earlier tensions between their preferred approaches and the limitations of the environment. As a progression this cycle was embedded in a structure of enquiry that engaged **all** the learners in discussions about what constitutes success and what kinds of evidence are available. There was a step-change to the widespread development of learners as co-researchers (Fielding and Bragg, 2003) when projects reached this developmental stage. The boundaries between classroom

pedagogy and the L2L enquiry become increasingly fuzzy, with the learning endeavour being shared.

I introduced the idea that the class could complete their own research project about learning. They decided to research a number of areas including preferred learning environments, favourite lessons and whether children learnt more during them. They also investigated the different ways in which children got ready for learning.

Over the next couple of weeks, the children created a questionnaire ...create[d] a database using the information that they had collected... created graphs using the information which enabled the children to analyse them, looking for trends and areas of interest.

During another conferencing session with a small group of children, I asked them what they would now like to do with the research. They explained that they felt it was important that they presented their findings to the teachers. They hoped that teachers across the school would begin to use the 5Rs [dispositions framework] as they had found them so beneficial. They also suggested creating a checklist for children within the school to help them get ready for learning.

The last part of our project was bringing all their information and ideas together to present their findings. Some children created graphs. Others designed posters that could be displayed around the school and help teachers implement the 5Rs into the classrooms. Another group created a checklist that could be given to all the children to support their learning and one group created a power point so they could present their findings

to the teachers during a staff meeting... It was something that they had taken on, experimented with, learned to use, researched and in the end something that they wanted to continue with. This was so much more than what I had hoped to achieve and all because they were involved.

(Lucy Fisher, Primary School Teacher, excerpt from case study)

Lucy's case study involved her class of 30 eight and nine year old students being a research team and in order for that to happen she had to reflect on her newly acquired 'researcher tools' and how she had mastered them so as to model and scaffold the information gathering, building understanding and critical thinking of designing a questionnaire. Moreover, the project developed beyond the acquisition of sophisticated skills by embedding a structure of consultations – the 'conferencing sessions' – where the purpose and direction of the project was up for debate.

The process of practitioner enquiry comprised the same reflective and strategic (metacognitive) thinking that we are asking student learners to adopt. As reflective practitioners, it can form the vehicle for this vital part of professional learning and the development of future practice (Lieberman and Pointer Mace, 2009), there is a complementary force that is needed alongside reflective practice and that is the need for action (Loughran 2002): strategic action based on reflections. In Learning to Learn, because of the co-learner/ co-researcher identities which had been introduced into these classrooms, there was a relational shift in how interactions were framed (Lofthouse and Hall, 2013): power structures were not overturned but more the possibility of authentic feedback to drive the future action was foregrounded.

I have found my own teaching becoming better as a result of the Learning to Learn project. By being more open with the children about

my own views, the children have equally done the same. They were not afraid to tell me if they found something hard or didn't enjoy an activity because they knew by doing this it helped me make things better for them. (Chris Daly, Primary School Teacher, interview data)

This kind of feedback was woven through the learning experience and we note that it was the frequency of opportunity to give and receive feedback and the contract by which it is honoured makes it, in Hattie's (2012) terms, truly formative for teacher and student.

4.5 Cycle 5: Critical metacognition

Developing criticality is often about disruption of the 'taken for granted' (Mezirow, 2000, p.8), something that the enquiry process facilitated in each of these cycles and so although we locate criticality in the fifth cycle it has been building throughout. In all the individual enquiries, the process of the research itself was influential in supporting and facilitating the teachers' professional learning and, in many cases, allowing them to open up conversations about learning to include not only the children's perspectives but also their own. Also characteristic of the development towards this stage was a move from something that was purely practice focused to a more theory orientation for example, exploring the idea of generalising what a good learner looked like across school/ across life, the overarching learning dispositions that are characteristic of a successful learner (teacher, student or both); or elements of a pedagogy for developing metacognitive awareness. At this point there was a theorising of practice.

There is widespread agreement regarding the importance of inquiry in teacher learning throughout professional life (Dickson, 2011; Baumfield and Butterworth 2005). However, research also shows that not all teachers follow the same trajectory in the process and for many inquiry stops at the level of verification that something 'works' in their classroom and need not lead to the wider engagement expressed in the concept of enquiry (Franke et al. 1998). Analysis of the development of collaborative teacher research in the UK identifies developmental stages in the process of moving from inquiry into individual contexts and enquiry involving engagement with research (Temperley and McGrane 2005).

In a similar way, progression at this stage was associated with a change in the mode of questioning in which the teachers were engaged; signalled by a shift from 'how' to 'why' questions. For the project teachers, criticality emerged as a result of taking the enquiry findings out of the immediate classroom context and subjecting them to the scrutiny of a wider learning community (Towler, Hall and Wall, 2009). This was enabled through the project structure, as they got together once a term in their regions and once a year in the national group. The transition from 'what I found out about *that*' to 'what I have learned about that in relation to *myself and my practice*' is one that took place largely within that social space (McLaughlin and Black-Hawkins, 2004; Hall, 2009). This operated at a cognitive and an affective level, providing a language, structure and rigour for 'being a teacher-researcher' along with identification with others and acceptance of messiness in the reality of that practice:

Changing teachers' classroom practice is notoriously difficult. We are consequently very encouraged to see the important improvements that

our results suggest have been made over the last number of years. Yet this is not the most important benefit that has been derived from this project. The process of critical review and evaluation has allowed us to reflect upon our practice in a much more thorough, methodical and analytical manner than would typically be the case.(Fallibroome High School, school leader interview)

The first time round [attending the national residential] was one of the best experiences ever in my teaching career and still is. The things that made me think I am not alone here, it was a tremendous experience and it seems to have grown to include people who aren't so eccentric in their thinking and is still going strong... (Deborah Currans, Headteacher, Wooler First School, interview)

The regular meetings and the opportunity to explore their own learning sent teachers back into their classrooms to begin the cycles of metacognitive work anew.

5 Summing up: what does a metacognitive role model do?

Within this paper we have wanted to make a case, based on our knowledge of metacognition and how teachers can facilitate their own and their students' learning development through practitioner enquiry, for teachers as metacognitive role models. In 1987, Wittrock suggested that teachers could influence their students thinking and that this in turn could impact attainment outcomes, yet there is limited research on the impact teachers' metacognitive awareness might have on their students' thinking and learning development (Zohar 1999). Yet Wilson and Bai

(2010) assert that teachers should have a pedagogical understanding of metacognition, model thinking approaches and ensure problem solving is transparent and explicit by providing an account of how metacognitive pedagogical knowledge is reliant on metacognitive awareness of self. The difference we want to emphasize goes beyond what MacBeath et al. (2009) call learning role models, and centres on the authenticity and transparency of the teachers' learning stance.

There is great resonance for teachers in pragmatically conceptualizing their learning in action (Dewey, 1938/1991) and further, to see this learning as both socially constructed and socially supported (Vygotsky, 1978). For the individual teacher, just like the learners in their class, staying in the reflective space is safe and personal; strategic action opens up the potential to experiment, to explore, to succeed and to fail. What the teachers in this project were doing was additionally making this process explicit. This means accepting Kelchtermans' (2009) third element of teacher vulnerability and sharing the thought process, however codified and whatever the outcome, with the students. The characteristics of the community in which this process is undertaken is fundamental (Hulme et al. 2009). We feel that we have identified something here about the power of opening up the conversation about teaching and learning (summarised in figure 5). The research remained ultimately the teachers' domain, yet it was enhanced by productive conversations with students. By talking about the thought process of planning a lesson and the pragmatics of teaching a class then the students got insight into the teachers' metacognitive processes in engaging with teaching and learning, and as a result, got a new perspective on their role(s) as learners.

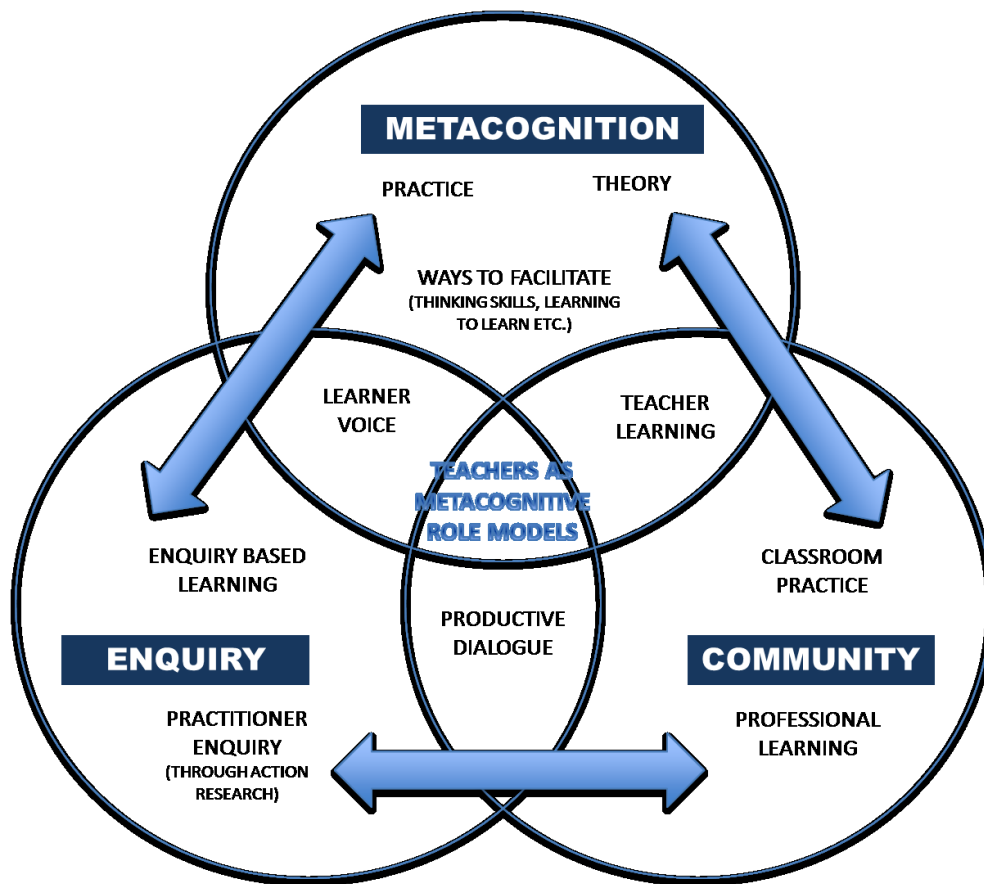


Figure 5: A dynamic model of connections that contribute to teachers as metacognitive role model

In many ways, we are not talking about teachers doing something new or extra. There is wide agreement that teachers should be learners (Baumfield, 2007; MacBeath et al., 2009), and every day they model consciously and unconsciously a number of competencies and practices through their relationships with students (Korthagen 2004; Tickle 1999). Through their talk and the nature of the dialogue in their classrooms (Wegerif 2010), teachers also set up the semiotic frame through which teaching and learning is understood. Some things are consciously owned and promoted by teachers, others operate in the 'taken for granted' of culture and accustomed practice. Teachers perform intellectually and personally demanding tasks and therefore do skilled 'metacognitive work'. The contention of this paper is

that bringing this work into the forefront of teachers' reflective awareness and then into classroom dialogue can allow them to model the 'how' of metacognition to students still developing those skills.

Note: All schools and teachers are named as the L2L Project was an authentic school-university research partnership (McLaughlin & Black-Hawkins, 2004) in which the collaborative nature of the work is demonstrated by equality of recognition. Further information on the Learning to Learn in Schools and Further Education Project, including the teachers' case studies, can be downloaded from: <http://www.campaign-for-learning.org.uk/cfl/learninginschools/projects/learningtolearn/index.asp>

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